

IN THE SPECIFICATION:

Please amend the first paragraph of the application as follows:

SP I A division of the present reissue application was filed on January 15, 2003 as reissue application Ser. No. 10/342,217. The present application is a reissue application of U.S. Patent No. 5,831,944, which issued on November 3, 1988 from application Ser. No. 08/858,206, filed May 13, 1997, now abandoned, which is a continuation of application Ser. No. 08/389,579 filed Feb. 15, 1995, now abandoned, which in turn is a continuation-in-part of application Ser. No. 08/111,974, filed Aug. 26, 1993, now abandoned in favor of continuation application Ser. No. 08/643,833 filed May 7, 1996, which issued as U.S. Patent No. 5,626,428 on Apr. 1, 1997. A division of said application Ser. No. 08/643,833 issued as U.S. Patent No. 5,889,739, which is the subject of pending reissue application Ser. No. 09/820,734.

Please replace column 7 of the issued patent in its entirety with the following:

$$K_{\perp} = Ku + \frac{\sigma w}{4hl} - 2\pi Ms^2$$

As shown in FIG. 6, the readout layer is subjected to the exchange coupling force from the recording layer at room temperature (RT), but energy of a demagnetizing field is dominant because of large Ms within a low-temperature region near room temperature. As a result, the following relation 6 is obtained, and the readout layer becomes an in-plane magnetization film.

$$Ku + \frac{\sigma w}{4hl} < 2\pi Ms^2, K_{\perp} < 0$$

Similar to the above example, in a portion of the magneto-optical recording medium where the temperature increases due to projection of the readout laser beam, Ms of the readout layer decreases, and thus $2\pi Ms^2$ rapidly decreases. As a result, the above relation is reversed, as shown by the following relation 7, and the readout layer becomes a perpendicular magnetization film.

$$Ku + \frac{\sigma w}{4hl} > 2\pi Ms^2, K_{\perp} > 0$$

However, in a high-temperature region within the light spot, like at room temperature, the readout layer is an in-plane magnetization film.

The intermediate layer functions as a mediator of exchange coupling force from the recording layer to the readout layer, until its Curie temperature is reached, and information in the recording layer is transferred to the readout layer.

However, in the high-temperature portion within the light spot, the temperature of

~~the intermediate layer reaches its Curie temperature.~~ The intermediate layer has such a composition that Curie temperature is reached, or laser power is set so that Curie temperature is reached. In this portion, thus, the exchange coupling force is eliminated, and the perpendicular magnetic anisotropy constant of the readout layer rapidly decreases in appearance. Therefore, the magnetization direction of the readout layer becomes an in-plane direction again (refer to FIG. 6). Namely, the energy of the interface domain walls between the readout layer and the recording layer becomes 0, and the following relation (8) is obtained:

Sub 630
P18

$$Ku < 2\pi Ms^2, K_{\perp} < 0$$

Like the two-layer structure, therefore, only the medium-temperature region becomes an aperture region, thereby realizing super-resolution.

In such a case where the intermediate layer is formed, which has low Curie temperature, the readout layer can be an in-plane magnetization film at room temperature and raised temperatures and be a perpendicular magnetization film at intermediate temperatures therebetween in its layered structure together with the intermediate and recording layers, though the readout layer has no characteristic that the layer structure in its single layer state returns to an in-plane magnetization film at raised temperatures. Thus, the recording medium comprising the intermediate layer is advantageous in that material can be selected from a wider range.

Since the intermediate layer need not to contribute to the magneto-optic effect, reproduction characteristic do not deteriorate even if Curie temperature is set to a low value.

W.N.
6-1-04

~~Although, in the above description, it is assumed for convenience sake that the width~~
of the interface magnetic